

DIFFRACTIVE OPTICAL ELEMENT AND METHOD OF MANUFACTURE

Abstract of the Disclosure

A diffractive optical element such as a diffuser, diffraction grating, and/or hologram, can be manufactured by using a surface relief pattern on a surface of a surface relief tool. A layer of curable material is physically contacted with the surface relief pattern on the surface of the surface relief tool to thereby imprint the pattern on a surface of the layer. Diffractive features are formed in the layer by propagating energy through the surface relief tool and into the layer such that refractive index variations corresponding to the pattern are created in the layer. The resultant product is a diffractive optical element comprising a layer of material having diffractive features formed by a predetermined pattern of refractive index variations. The diffractive features originate at an undulating boundary and extend only from one side of the boundary into the material. The undulating boundary has an undulating pattern that corresponds to the predetermined pattern of refractive index variations.